T H E G A M E O F S U S A N (tm)

An Introduction To Strategy

An Enigmatic(tm) Production

THE FINE PRINT

ABOUT SUSAN

SUSAN is a quick and subtle board game for two players. It was invented by Stephen Linhart (that's me) in 1991. In addition to the traditional board game, SUSAN is also available as a computer game for Macintosh. You can get the Macintosh version on AOL or GEnie, or from the info-mac ftp site at sumex-aim.stanford.edu on the Internet. The Macintosh version of SUSAN features an intelligent computer opponent that uses a simulated neural-network to actually learn by playing.

Send comments and questions about SUSAN to:
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Stephen123 on AOL - stephen123@aol.com on Internet

"SO WHY CALL A BOARD GAME SUSAN?" (an advertising blurb)

Well, I'll tell you. One day, me and my friend Michael were having lunch at our favorite cafe. We were playing my new game and I asked him what he thought I should call it. Just then, the waitress came over and Michael asked her name. She said 'Susan', and he turned to me and said 'Susan'. So I said 'Ah... Susan'. Anyway, the name stuck, and it must be a good one because everybody asks "So why call a board game SUSAN?"

THIS MANUAL

This manual includes an introduction to the game of SUSAN, plus basic and intermediate strategy tips. I created it in ASCII (plain text) so that it

can travel freely in the electronic world. Please pass this manual along to your friends!

To see the diagrams correctly you need to use a fixed-width font such as Courier or Monaco, not a proportionally spaced font like Times or Helvetica. Most modem software uses a fixed-width font.

I've tried to give a good, basic introduction to strategy. But SUSAN is a new game, and I am still new at SUSAN. I'm sure there is much more to learn, and it's possible that some of the tips I give in this manual will become outdated. If you discover something new and exciting that I haven't discussed in the manual, please let me know.

THE RULES

SUSAN is played on a hexagonal board with 61 spaces, using two sets of playing stones. Here is a diagram of a SUSAN board. Each star is a space where a stone can be placed. Most spaces have six neighbors. The edge spaces have four neighbors and the corners have three.

```
    * * * * *
   * * * * * *
  * * * * * * *
 * * * * * * * *
* * * * * * * * *
 * * * * * * * *
  * * * * * * *
   * * * * * *
    * * * * *
```

To begin the game, players choose colors and decide who goes first. On each turn you can place a stone in any empty space, or slide a stone that you already have on the board. When you slide a stone, you move it to any neighboring space that's empty. If both players slide three turns in a row (three slides for each player makes six total), the game is a draw. You can't pass your turn.

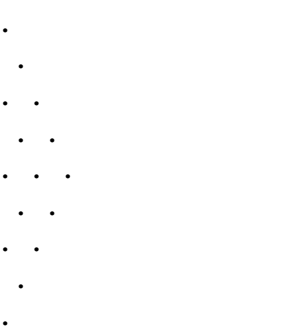
The object of the game is to surround any ONE of your opponent's stones. You surround a stone by filling in the spaces around it - a stone can be surrounded by any combination of your stones, your opponent's stones and the edge of the board. But be careful; if one of your stones is surrounded on your own turn (even if you surround one of your opponent's stones at the same time), you lose the game!

Remember that your stones can be surrounded by your own stones, as well as your opponent's stones and the edge of the board. Having more stones on the board is not always better.

EXAMPLES

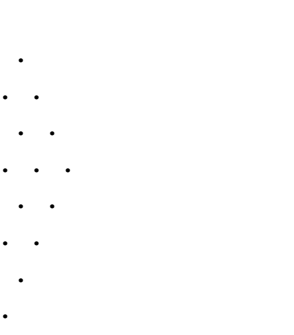
In these examples (and the examples in other sections) I show black stones as 'x', white stones as 'o', and empty spaces as dots. If I want to point out a particular stone I use a large 'X' or 'O'.

T h r e a t e n e d



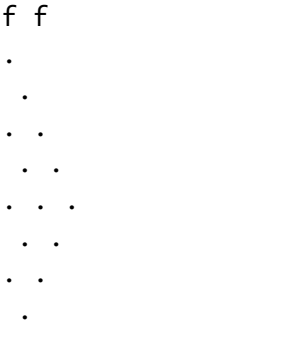
A black stone is surrounded on five sides. Black needs to make a defensive move. Otherwise White can win on the next turn.

D e f e n d e d



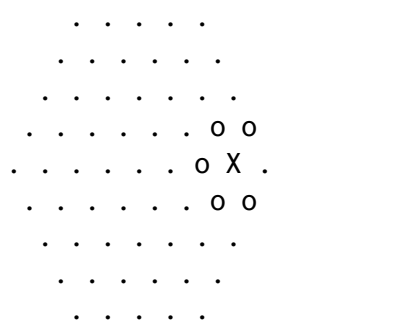
This move guards the space where White would have placed the winning stone. Remember, if one of your stones is surrounded on your own turn, you lose the game.

S t a n d o f f



White slides a stone. In this situation, neither player can make the winning move.

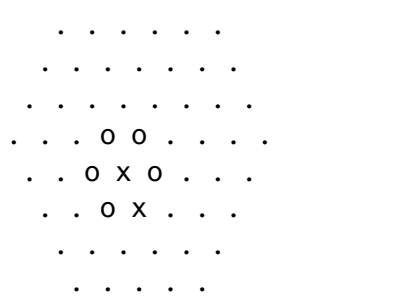
S a f e



Because of its position near the corner, this black stone cannot be surrounded. White cannot place in the corner without losing the game.

BASIC STRATEGY

It takes six turns to surround one of your opponent's stones with six of your own. If your opponent has two stones next to each other, you can surround one of them in only five turns, like this:



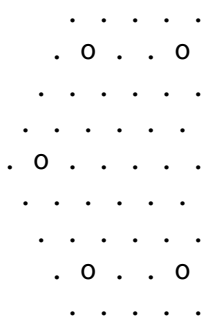
The basic principle of attack in SUSAN is to always attack your opponent where they're weakest. Pick the stone you can surround in the fewest turns (the enemy stone with the fewest empty neighbors).

There are three ways to defend a stone in SUSAN. The first is to finish an attack before your opponent does. If you're close to winning, you don't need to defend stones that still have many empty neighbors.

The second form of defense is to slide the threatened stone to safety. This is a good defensive technique, but stops you from placing a new stone. If your opponent can keep you on the run for several turns, they gain a strategic advantage. If you're winning, your opponent may try to force you to slide in order to reach a draw.

The third form of defense is to threaten one of the spaces your opponent needs for their attack. If your opponent cannot place one of the six stones they need to win, you're safe. The example titled 'Defended' in the previous section is an example of this kind of defense.

There are six spaces on the board where a stone will be safe even if you don't defend it. Your opponent can never place all six stones needed to surround a stone in one of these spaces:

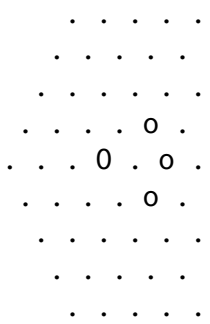


The example called 'Safe' in the previous section shows five white stones around a black stone in a safe space. If you are White and you place the sixth stone in the corner, you will immediately lose. Remember, if one of your stones is surrounded on your own turn (even if you surround one of your opponent's stones at the same time), you lose the game. The six safe spaces are important because a stone in a safe space can be an advantage, but it's almost never a disadvantage.

PATTERNS

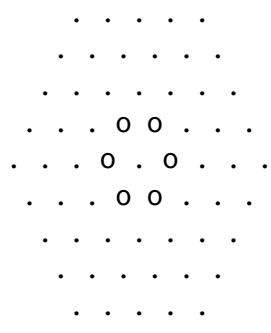
The next stage of strategy in SUSAN is to control the pattern of stones that develops on the board. Significant patterns range from simple arcs and triangles to complex whole-board patterns.

The arc pattern is an extension of the same idea that makes spaces near the corners safe. This white stone is safe because Black can't place six stones around it without losing.



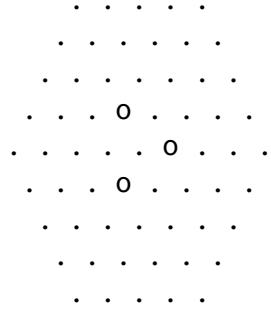
But the three white stones that form the arc aren't safe. To attack an arc formation, attack the stones that form the arc, not the stone they protect.

Extend the idea of an arc to protect six stones and you get a complete ring.



These stones are completely safe unless you break the ring yourself. A ring like this is often an advantage and rarely a liability, but it takes time to form a ring. Six turns could be a fifth of a game. You rarely want to take the time to play it that safe.

Another important pattern is a triangle in which three stones form the potential for three arcs.

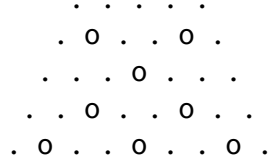


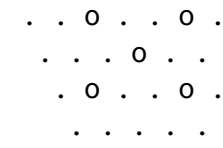
In this pattern you have a very good chance of protecting any of the three stones by forming an arc with the other two. The ability to protect your stones this easily lets you concentrate on offense and keep the initiative.

WHOLE BOARD PATTERNS

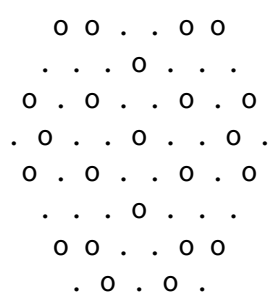
The idea of using a pattern of stones that protect and reinforce each other can be extended to the whole board. You won't generally finish such a large pattern in a serious game, but these patterns do give you ways to plan your strategy and to understand board positions.

One good pattern is to fill the board with triangles based on the safe spaces near the corners.

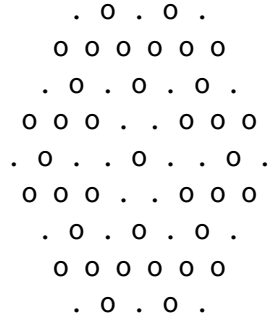




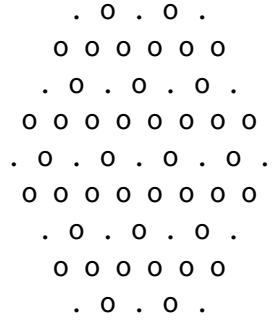
Your opponent isn't likely to let you get this far. But you can still take advantage of the pattern, even if you can't finish it. You can extend the pattern with twelve stones around the edges that are completely safe, and don't threaten any of the thirteen other stones in the pattern.



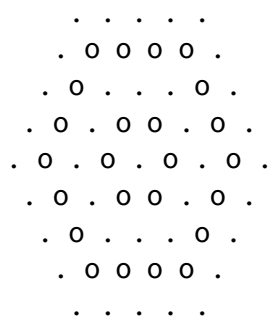
From here, you can add twelve more stones to reach an even stronger position.



Five more stones and a single slide give you the final form of this pattern.



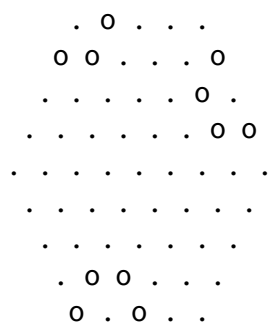
You would never see this entire pattern in a game. But watch for elements of it as you play. It can also form as two solid circles, one inside the other, with half-filled circles between them. This is the early form of the pattern as two solid circles.



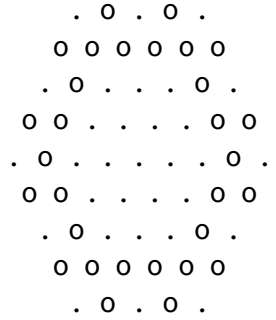
EDGE PLAY

Play around the edges is unique. You can think of the edge of the board as a circle of stones that don't move, and are neither black nor white. Each corner of the board is an arc of three imaginary stones protecting one of the six safe spaces. A stone in a safe space, plus two more on the edge complete the arc to form a ring. This is a very fast way to form a ring, but it doesn't influence much of the board.

This diagram shows three ways to make a partial ring around the edge of the board.



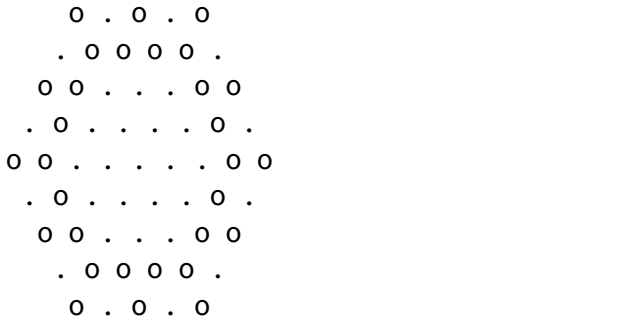
The three-stone partial on the upper left and the four-stone partial on the upper right are compatible. You can surround the edge of the board with these two patterns and have twelve partial rings.



This is 30 very safe and stable stones and it's also part of the full-board

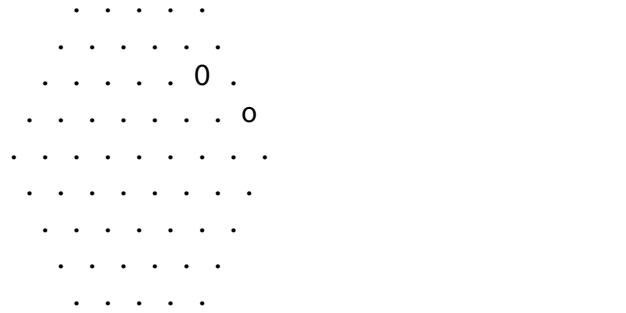
pattern I described in the previous section. It's unlikely you'd ever form this pattern entirely from your own stones. But it's easy to develop this situation with a mixture of stones from both players - a somewhat less stable situation, but still quite stable.

The other four-stone partial creates an incompatible, but also stable, situation.



Because these two edge patterns are incompatible, conflicts develop where they meet. Either the players slide edge stones until only one pattern remains, or else the game becomes focused on the edge conflict.

Another interesting edge situation to watch for is a partial arc formed by two edge locations and a stone. In this diagram,the indicated stone is protected by an edge arc.



This is an important technique, because you can use it to protect a threatened stone in a single move.

TRAPS

A stone that's enclosed in a two-space trap is often doomed. If you get into this situation without some additional form of protection, you can run but you can't escape. In this example, it's Black's turn. White will win in three moves.

```
  . . . . . .
 . . . . . .
. . . . . .
 . . . x x o . .
  . . o . X o .
   . . x o x .
    . . . . .
```

One way to take advantage of this technique is to build an empty trap. That leaves you with spaces on the board where you have some flexibility, but your opponent doesn't. In this example, White has constructed an empty trap, while Black has formed three partial rings.

```
    . x . x .
   x x . . x x
  . . . . . .
 x . . . . . .
. x . . . . . .
 x . . o o o . .
  . . o . . o .
   . . o o o .
    . . . . .
```

You can build traps more quickly around the edges. Edge traps help keep your options open, and can also stabilize places where the two edge patterns meet.

```
    . x . o .
   x x o x x x
  . x . . . x .
 x x . . . . x o
. x . . . . . o .
 x o . . . . o .
  . x . . . o o
   o o o o o .
    . . o . o
```

In this example, two edge traps give White a clear advantage.

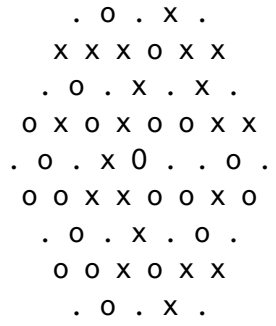
THE END GAME

As the board fills up, it can get hard to find moves that don't put you in jeopardy. You can get in trouble because of a shortage of good moves, or you can use it to your advantage. Sometimes neither player can find a safe move except for slides, and the game is a draw.

If you can create a situation in which you're opponent has no safe moves but you do, you can win. One way to do this is to count down the number of

remaining moves, and try to control the board so the last safe move will be yours. If both players play very close to a pattern you are familiar with, you may be able to count the number of slides that you and your opponent have made and know who will win if the pattern isn't disrupted.

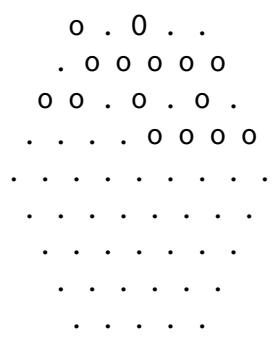
If the board looks like this on Whites turn, White can slide the center stone and win in one more move.



Black needs to avoid this situation, either by sliding instead of placing on the previous turn, or by setting up a safe move earlier in the game.

To have a safe move when the board fills up, you can try to keep more options open than your opponent does. Or you can try to have a place on the board where you'll always be able to slide, and there's nothing your opponent can do about it. If you can do that, you can always settle for at least a draw and you have a good chance of winning.

This is a pattern that would guarantee at least a draw, because you can always slide the indicated stone.



In a real game, you don't have to be so elaborate because your opponent's options are limited by the positions of both black and white stones.

Keep in mind that it is not a simple matter to count the number of turns remaining in a game. The combination of sliding and placing stones makes the situation very complex.

NOTATION

This section on notation and the example game may only be of interest to some folks. If you're not particularly interested in this sort of thing, you might want to stop here and read these sections later when you're looking for more in-depth information about SUSAN.

To play SUSAN by mail, or to write down and annotate games, you'll need a consistent system of notation.

Give each row a letter from 'a' thru 'i', starting at the top. Then number the spaces in each row starting at the left. This gives you a unique letter-number combination for each space on the board.

```
a     1 2 3 4 5
b    1 2 3 4 5 6
c   1 2 3 4 5 6 7
d  1 2 3 4 5 6 7 8
e 1 2 3 4 5 6 7 8 9
f  1 2 3 4 5 6 7 8
g   1 2 3 4 5 6 7
h    1 2 3 4 5 6
i     1 2 3 4 5
```

To show the coordinates and the stones in a game of SUSAN, I use a diagram like this.

```
       1 2 3 4 5
    a . . . . . 6
   b . . . . . . 7
  c . . . . . . . 8
 d . . . . . . . . 9
e . . . . . . . . .
 f . . . . . . . . 9
  g . . . . . . . 8
   h . . . . . . 7
    i . . . . . 6
       1 2 3 4 5
```

The letters label rows from the left. The upper set of numbers labels diagonals down to the left. The lower set of numbers labels diagonals up to the left. Use the upper set of numbers on the upper half of the board and the lower set of numbers on the lower half of the board. The two sets of numbers are the same for row 'e'.

EXAMPLE GAME

Here's a game I played against the computer on the Macintosh version of SUSAN. The computer played Black (actually dark blue) represented here as

'x'. I played White (light red) represented as 'o'. You can get more out of this game if you play along, instead of just reading it. Black plays first.

```
 1 B  d6
 2 W  b5
 3 B  c4
 4 W  b2
 5 B  d3
 6 W  e2
 7 B  f3
 8 W  h2
 9 B  g4
10 W  h5
11 B  f6
12 W  e8
13 B  f2
14 W  e5
```

The computer tries to take control of the middle board. I take the safe spaces and then contest the center.

```
       1 2 3 4 5
    a . . . . . 6
   b . o . . o . 7
  c . . . x . . . 8
 d . . x . . x . . 9
e . o . . o . . o .
 f . x x . . x . . 9
  g . . . x . . . 8
   h . o . . o . 7
    i . . . . . 6
       1 2 3 4 5
```

```
15 B  f5
16 W  d2
17 B  f4
18 W  h3
19 B  d4
20 W  g2
21 B  d5
22 W  g5
```

The computer is developing a pattern to make my stone at e5 a liability. I continue to play conservatively (except for the stone at e5) until turn 22 when I start to worry about where the computer is heading and decide to attack f5.

```
       1 2 3 4 5
    a . . . . . 6
```

```
   b . o . . o . 7
  c . . . x . . . 8
 d . o x x x . . 9
e . o . . o . . o .
 f . x x x x . . 9
  g . o . x o . . 8
   h . o o . o . 7
    i . . . . . 6
       1 2 3 4 5
```

```
23 B  f6->f7
24 W  h4
25 B  f5->f6
26 W  e6
27 B  c4->b3
28 W  g5->g6
29 B  f3->e4
30 W  e6->e7
```

The computer responds to my attacks on turns 22, 24 and 26 by withdrawing, but basically stays within its desired pattern. I'm succeeding in forcing it to waste turns while I build board position. On turn 28 I try to get back to my own pattern, but the computer takes advantage of my less aggressive move to attack e5 and gain initiative.

```
       1 2 3 4 5
    a . . . . . 6
   b . o x . o . 7
  c . . . . . . . 8
 d . o x x x . . 9
e . o . x o . o o .
 f . x . x . x x . 9
  g . o . x . o . 8
   h . o o o o . 7
    i . . . . . 6
       1 2 3 4 5
```

```
31 B  c6
32 W  c4
33 B  d3->c2
34 W  d3
35 B  d5->c5
36 W  e7->d7
37 B  f6->f5
38 W  e5->d5
39 B  c5->b4
```

The computer doesn't press the attack on turn 31, so I return to the offensive. The computer is in trouble, and on turn 39 it gives me an opportunity to draw.

```
       1 2 3 4 5
    a . . . . . 6
   b . o x x o . 7
  c . x . o . x . 8
 d . o o x o x o . 9
e . o . x . . . o .
 f . x . x x . x . 9
  g . o . x . o . 8
   h . o o o o . 7
    i . . . . . 6
       1 2 3 4 5
```

```
40 W  f3
41 B  g4->g5
42 W  h3->g4
43 B  f5->e6
44 W  f5
45 B  d5->e7
46 W  d5->d6
47 B  h3
48 W  g6->f6 *W*
```

By turn 45 it's pretty much all over. The computer's move 47 is just killing time until I win on turn 48 by surrounding e7.

```
       1 2 3 4 5
    a . . . . . 6
   b . o x x o . 7
  c . x . o . x . 8
 d . o o x . o o . 9
e . o . x . x X o .
 f . x o x o o x . 9
  g . o . o x . . 8
   h . o x o o . 7
    i . . . . . 6
       1 2 3 4 5
```

The game never moved out onto the edges, mostly because the computer was concentrating on the center. This isn't a master level game, but it is a good illustration of some of the techniques I've described in this manual.

THE END

Once you've mastered all these techniques and you're looking for a deeper, more complex game, try playing on a slightly larger 91-space board - six spaces on an edge. The larger board makes for a more involved and intricate game. SUSAN on a 61-space board is a quick and subtle game, and

it's a great way to get started.

Thank you for your interest in SUSAN. Have Fun!

- Stephen Linhart